OFFICE MEMORANDUM

MICHIGAN
DEPARTMENT OF STATE HIGHWAYS

March 9, 1972

To: Max N. Clyde
Engineer of Testing and Research

From: L. T. Oehler

Subject: Skid Testing of Seal Coats; Research Projects 54 G-74, 71 SR-18. Research Report No. R-809.

In response to your memo of September 17, 1971, skid tests were made on a list of seal coat projects judged by District personnel to be slippery. For research purposes, all the seal coat projects listed by each District Engineer were tested even though the original request was for testing only those surfaces judged to be slippery.

Test results are attached in Table 1. For comparison, Table 1 also lists skid test results for seal coats, bituminous aggregate surfaces, and bituminous concrete surfaces. Results are grouped for new pavements, those in service one year, and in service five years. Figure 1, is a graph of the data listed in Table 1. All seal coat data are from measurements made in 1971 and the projects varied in age from brand new to more than five years service. From these data, it appears that the life of a seal coat with respect to an acceptable level of friction is generally no more than five years. However, only 16 seal coat lanes in this investigation had been in service for five or more years. One fact that can be observed from the data is the wide variability in seal coat skid coefficients after a few years service. It is hard to believe that skid coefficients for projects deteriorate from the high value at four year service to the low at five year service. Rather, I suspect the difference is due to poor uniformity.

It was interesting to see how efficiently District personnel discriminated between slippery and non-slippery surfaces. Figure 2 was constructed using data from all the seal coat surfaces listed by District Engineers. About 51 percent of the surfaces judged to be slippery actually measured to have skid coefficients less than 0.4. About 23 percent of the projects not indicated to be slippery by District personnel had measured skid coefficients less than 0.4.

TESTING AND RESEARCH DIVISION

L. Ray T. Oehler

Engineer of Research
Research Laboratory Section

TABLE 1
COMPARISON OF SURFACE TYPES IN TERMS OF SERVICE YEARS AND FRICTION LEVELS

Years of Service	Surface Type	Total Lanes Tested	No. of Lanes with Coefficient of Friction Below 0.4	Mean Avg. Coefficient of Friction	Standard Deviation	Friction Level Range
0	Bit Conc	157	3	0.50	0.06	0.37 to 0.64
0	Bit Agg	40	15	0.42	0.10	0.22 to 0.60
0	Seal Coat	29	8	0.43	0.10	0.21 to 0.64
1	Bit Conc	86	20	0.47	0.09	0.31 to 0.64
1	Bit Agg	30	5	0.48	0.11	0.29 to 0.68
1	Seal Coat	19	4	0.48	0.15	0.14 to 0.69
5	Bit Conc	91	7	0.52	0.10	0.36 to 0.72
5	Bit Agg	18	0	0.56	0.07	0.49 to 0.73
5	Seal Coat	12	10	0.31	0.10	0.15 to 0.45
2	Seal Coat	10	4	0.49	0.14	0.30 to 0.77
3	Seal Coat	20	9	0.42	0.10	0.26 to 0.66
4	Seal Coat	24	2	0.56	0.10	0.32 to 0.78
5	Seal Coat	12	10	0.31	0.10	0.15 to 0.45
older than 5	Seal Coat	4	2	0.36	0.09	0.26 to 0.45

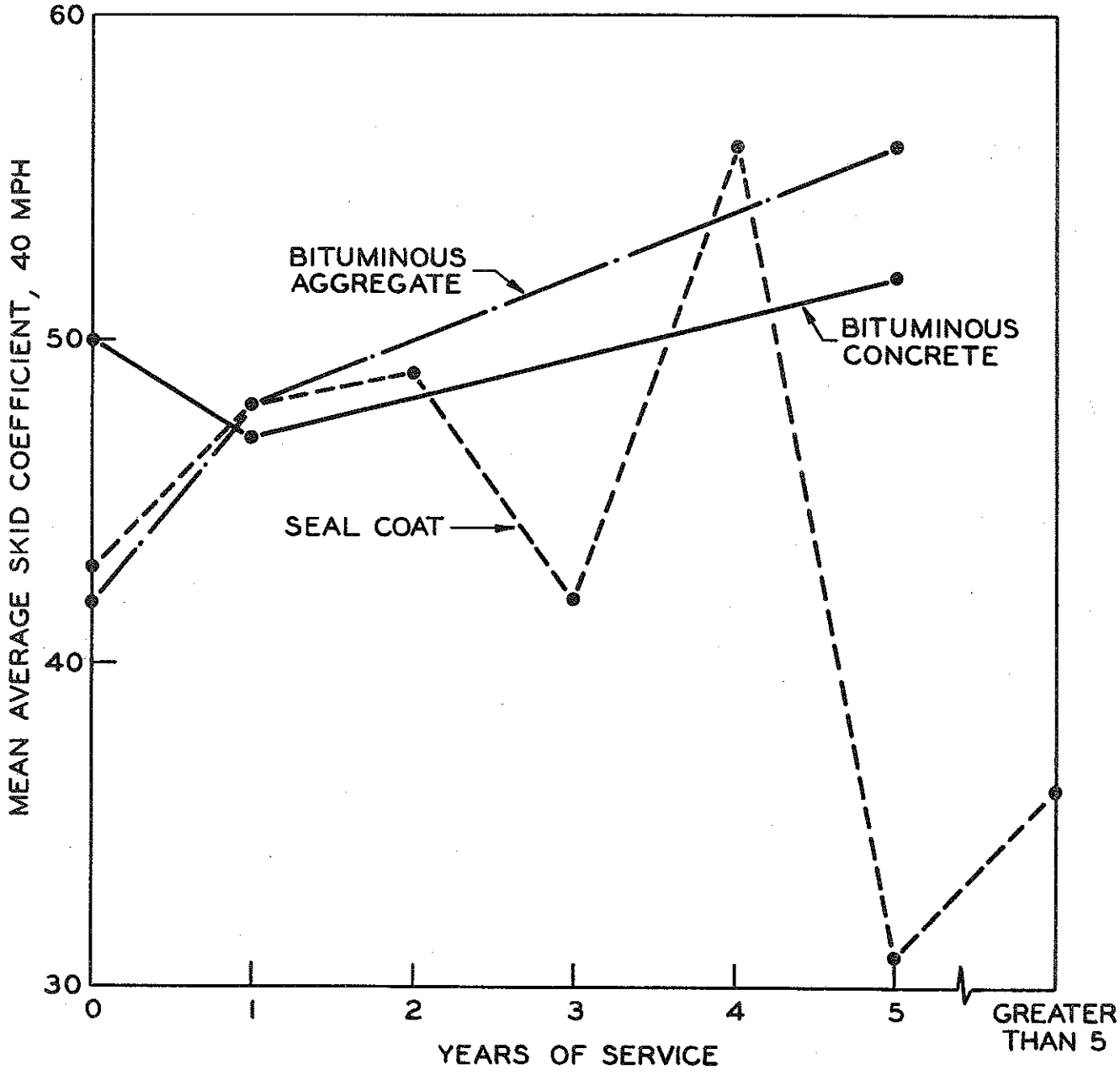

Figure 1. Relationship between surface age and skid coefficient.

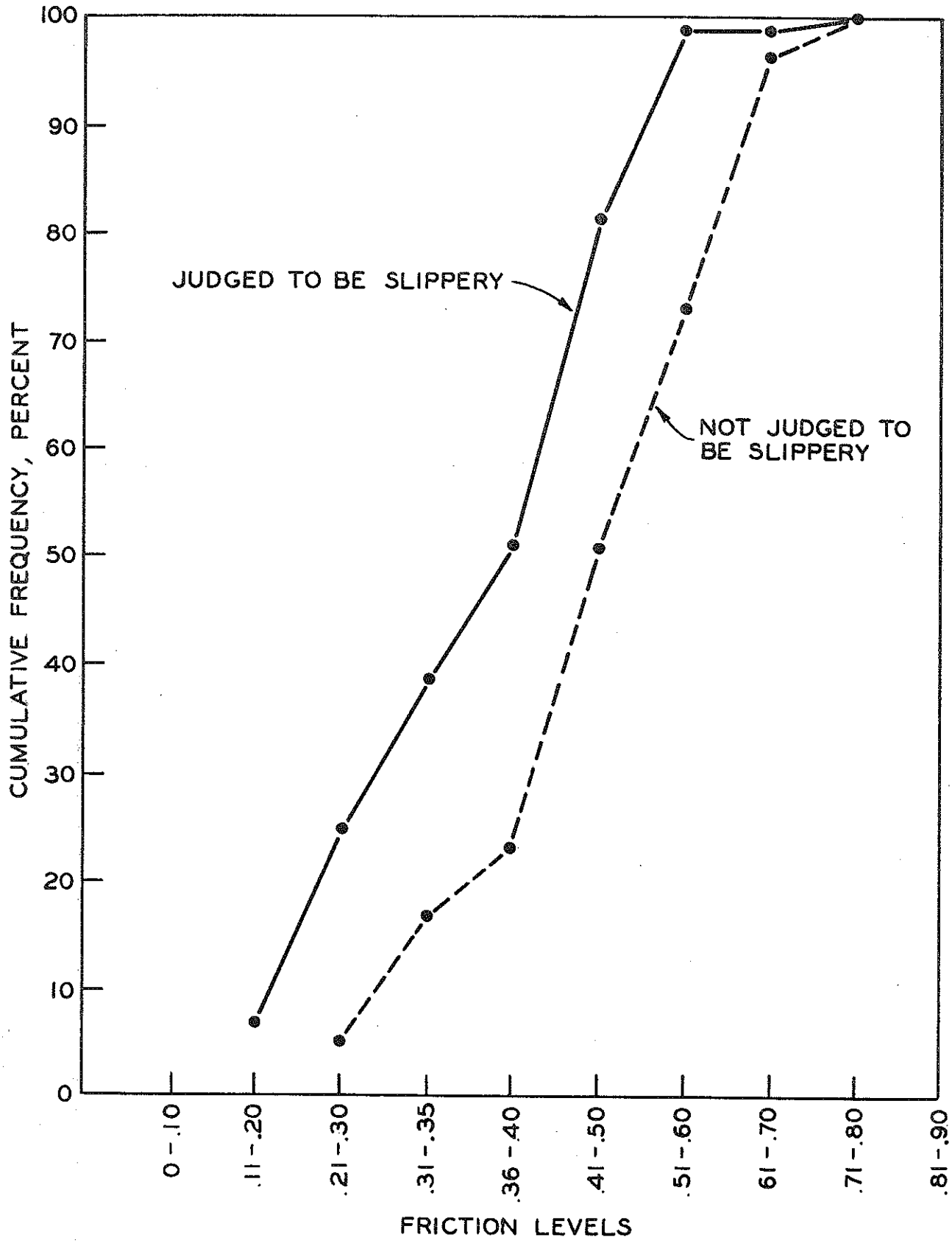

Figure 2. Relationship between measured friction level of seal coats and judgement of District engineering personnel.